

CLAIMS

1. An olefin polymerisation process carried out in the presence of an anti-fouling agent and a chromium-type catalyst or Ziegler Natta catalyst; characterised in that the anti-fouling agent comprises an anti-fouling polymer having an average molecular weight (Mw) of greater than 1000 daltons and containing:

- (1) one or more blocks $-(CH_2-CH_2-O)_k-$ where each k is in the range from 1 to 50; and
- (2) one or more blocks $-(CH_2-CH(R)-O)_n-$ where each R comprises an alkyl group having from 1 to 6 carbon atoms and each n is in the range from 1 to 50, and terminated by a R' and a R'' end groups, wherein R' is OH or an alkoxy having from 1 to 6 carbon atoms and R'' is H or an alkyl having from 1 to 6 carbon atoms.

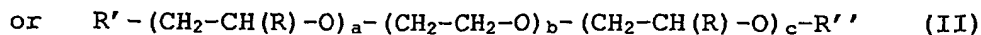
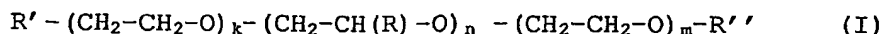
2. A process according to claim 1 wherein R is methyl.

3. A process according to claim 1 or claim 2, wherein the anti-fouling agent is liquid at room temperature.

4. A process according to claim 3, wherein the polymer has a molecular weight of at least about 2000.

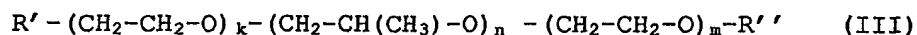
5. A process according to any one of the preceding claims, wherein the ends of the polymer are hydrophilic.

6. A process according to any one of the preceding claims, wherein the anti-fouling agent comprises a block copolymer having general formula (I) or (II):



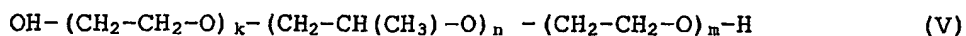
where R comprises an alkyl group; R' and R'' are end groups as defined in claim 1; k is from 1 to 50; n is from 1 to 50; m ≥ 1; a is from 1 to 50; b is from 1 to 50; and c is from 0 to 50.

7. A process according to claim 6, wherein the anti-fouling agent comprises a block copolymer having general formula (III):



where R', R'', k, n, and m independently are as defined in claim 5.

8. A process according to claim 7, wherein the anti-fouling agent comprises a block copolymer having general formula (V):



where k, n, and m independently are as defined in claim 6.

9. A process according to any one of the preceding claims, wherein the process is carried out in at least one loop reactor.

10. A process according claim 9, wherein the process is carried out in a double loop reactor.

11. A process according to any one of the preceding claims, wherein the process is carried out at a temperature in the range from 40 to 130°C.

12. A process according to any one of the preceding claims, wherein the process is carried out at a pressure in the range from 5 to 200 barg.

13. A process according to any one of the preceding claims, wherein the process is used to make a homopolymer or a copolymer of an alpha olefin.

14. A process according to claim 13, wherein the process is used to make a homopolymer of ethylene or a copolymer of ethylene and one or more other alpha olefins.